BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of Grain Belt Express LLC for a Siting Permit for the Construction of Two 345 kV Transmission Lines and Associated Facilities through Gray, Meade, and Ford Counties, Kansas.	)))))	Docket No. 24-GBEE-____-STG

DIRECT TESTIMONY OF

KEVIN CHANDLER

ON BEHALF OF

GRAIN BELT EXPRESS LLC

May 31, 2024

Contents

I. INTRODUCTION

Q. Please state your name, business address, and present position.

A. My name is Kevin Chandler. I am a Director of Transmission Business Development for Invenergy LLC ("Invenergy"). My business address is One South Wacker Drive, Suite 1800, Chicago, Illinois 60606.

Q. What are your duties and responsibilities in your present position?

A. Grain Belt Express LLC ("Grain Belt Express"), the Applicant in this proceeding, is a limited liability company organized under the laws of the State of Indiana. Grain Belt Express is a wholly owned subsidiary of Invenergy Transmission LLC ("Invenergy Transmission"), a Delaware limited liability company, which is a wholly owned subsidiary of Invenergy Renewables LLC ("Invenergy Renewables"), also a Delaware limited liability company. Invenergy Transmission and its affiliate company, Invenergy LLC, are global leaders in renewable energy and transmission development. Invenergy LLC or its affiliates are providing project management support for Grain Belt Express, including overseeing development of the Grain Belt Express transmission project, pursuant to agreements with Grain Belt Express.

In my current role at Invenergy LLC, among other things, I am responsible for assisting with the development of the Grain Belt Express Project. This includes but is not limited to siting, regulatory and environmental permitting efforts and public outreach, among other duties, in Kansas, Missouri, Illinois and Indiana.

Q. Please describe your educational and professional background.

A. I obtained a Master of Arts degree in Political Science from the University of North Carolina at Chapel Hill (UNC-CH) in 2009. Prior to that, I obtained a Bachelor of Arts degree in Journalism and Mass Communication from UNC-CH in 2007. Before joining

Invenergy in 2022, I worked at Apex Clean Energy, where I held several positions during my seven-year tenure. These include Project Development Manager, Senior Public Affairs Manager, Senior Manager of Federal Affairs, and Director of Government and Regulatory Affairs. In these roles, I supported the development of utility-scale wind and solar energy projects across the U.S. Before Apex, I worked on communications and advocacy campaigns for environmental NGOs and for a public affairs consulting firm in Raleigh, North Carolina.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Grain Belt Express, which is filing an Application requesting that the State Corporation Commission of the State of Kansas ("Commission") issue a siting permit establishing the route for two inter-related transmission lines and associated facilities (1) a double-circuit[1] 345 kV transmission line of approximately 46 miles in length across portions of Gray, Meade, and Ford Counties (the "Meade-Dodge City Line"), potentially including a future switchyard [2]at the Meade origination point; and (2) a single or double-circuit 345 kV transmission line of approximately 16 miles in length traversing a portion of Ford County (the "Bucklin-Dodge City Line"), potentially including a future switchyard at the Bucklin origination point. Together, Grain Belt Express may refer to

[1] The Meade-Dodge City Line is currently planned as a double circuit transmission line, but further refinements to Grain Belt Express' design and engineering may occur. Grain Belt Express will update the Commission throughout this proceeding regarding significant design and engineering modifications.

[2] The Meade Line and the Bucklin Line have been preliminarily sited and designed to be in proximity to renewable energy projects under development that have applied to the queue, and both transmission lines will be open to interconnection requests at those points. Initially, Grain Belt Express will maintain metering infrastructure at the origination points of the transmission lines. As projects interconnect, Grain Belt Express reserves the right to construct AC switchyards as needed. Because there are already multiple renewable energy projects seeking interconnection in the vicinity of Meade-Dodge City, Grain Belt Express will begin pursuing voluntary agreement for a switchyard location along the proposed route following the filing of this Application.

these lines as the "AC Collector Lines", which make up a portion of the AC Collector System.[3]

Specifically, the purpose of my testimony is to provide an overview of the AC Collector Lines and discuss why the AC Collector Lines are necessary and reasonable.

My testimony also will introduce the testimony of Grain Belt Express' other witnesses:

Grain Belt Express Witness	Testimony Topics
Jamie Precht, Burns & McDonnell Engineering Company, Inc.	• Details the route selection process • Supports the Routing Study for the AC Collector Lines • Provides a legal description of the proposed routes for the AC Collector Lines
Emily Hyland	• Discusses public outreach associated with the routing process for the AC Collector Lines
David Gelder	• Testifies as to the engineering details of the AC Collector Lines, including location, engineering design, construction schedule • Provides Grain Belt Express' procedures for construction and repair of the right-of-way
Brad Fine	• Describes landowner outreach process • Details easement acquisition protocols

Q. Are you sponsoring any exhibits as a part of your testimony?

A. Yes, I am sponsoring the following exhibit:

- Exhibit KC-1 – Kevin Chandler's Curriculum Vitae

II. BACKGROUND ON GRAIN BELT EXPRESS AND THE AC COLLECTOR LINES

Q. Please describe Grain Belt Express.

Grain Belt Express is a limited liability company organized under the laws of the State of Indiana. Grain Belt Express was formed in 2010 as a Delaware LLC and converted to an Indiana

[3] See, *infra*, for additional discussion of the "AC Collector System."

LLC in 2013. Grain Belt Express' principal offices are located at One South Wacker Drive, Suite 1800, Chicago, IL 60606.

Q. Please describe Grain Belt Express' parent companies and key affiliates.

Grain Belt Express is a wholly owned subsidiary of Invenergy Transmission, a Delaware limited liability company, which is a wholly owned subsidiary of Invenergy Renewables, also a Delaware limited liability company. Invenergy Transmission is an affiliate company of Invenergy LLC, which is an Illinois limited liability company.

Q. Please describe the AC Collector System.

A. Simply put, the AC Collector System is made up of facilities comprised of AC gathering lines that are necessary to connect generators in western Kansas. As the Commission is aware, Grain Belt Express holds a certificate of convenience and necessity from this Commission to construct the Grain Belt Express Project. In that proceeding, the Commission approved of and adopted the terms of a Stipulation & Agreement among Grain Belt Express, the Commission Staff, the Citizens' Utility Ratepayer Board ("CURB") and Energy for Generations, LLC. One of the terms in the *Stipulation & Agreement* states:

> [Grain Belt Express] should be granted a Transmission Only Certificate of Public Convenience and Necessity pursuant to K.S.A. 66-131, to operate as a public utility in Kansas and construct and operate a HVDC transmission line, and associated facilities as contemplated by its Application, including converter stations, lines to connect the converter stations to the SPP, and an AC Collector System comprised of AC gathering lines needed to connect generators in western Kansas.[4]

Q. Please describe the AC Collector Lines.

A. In this proceeding, Grain Belt Express is requesting that the Commission issue a siting permit establishing the route for the Meade-Dodge City Line and the Bucklin-Dodge City

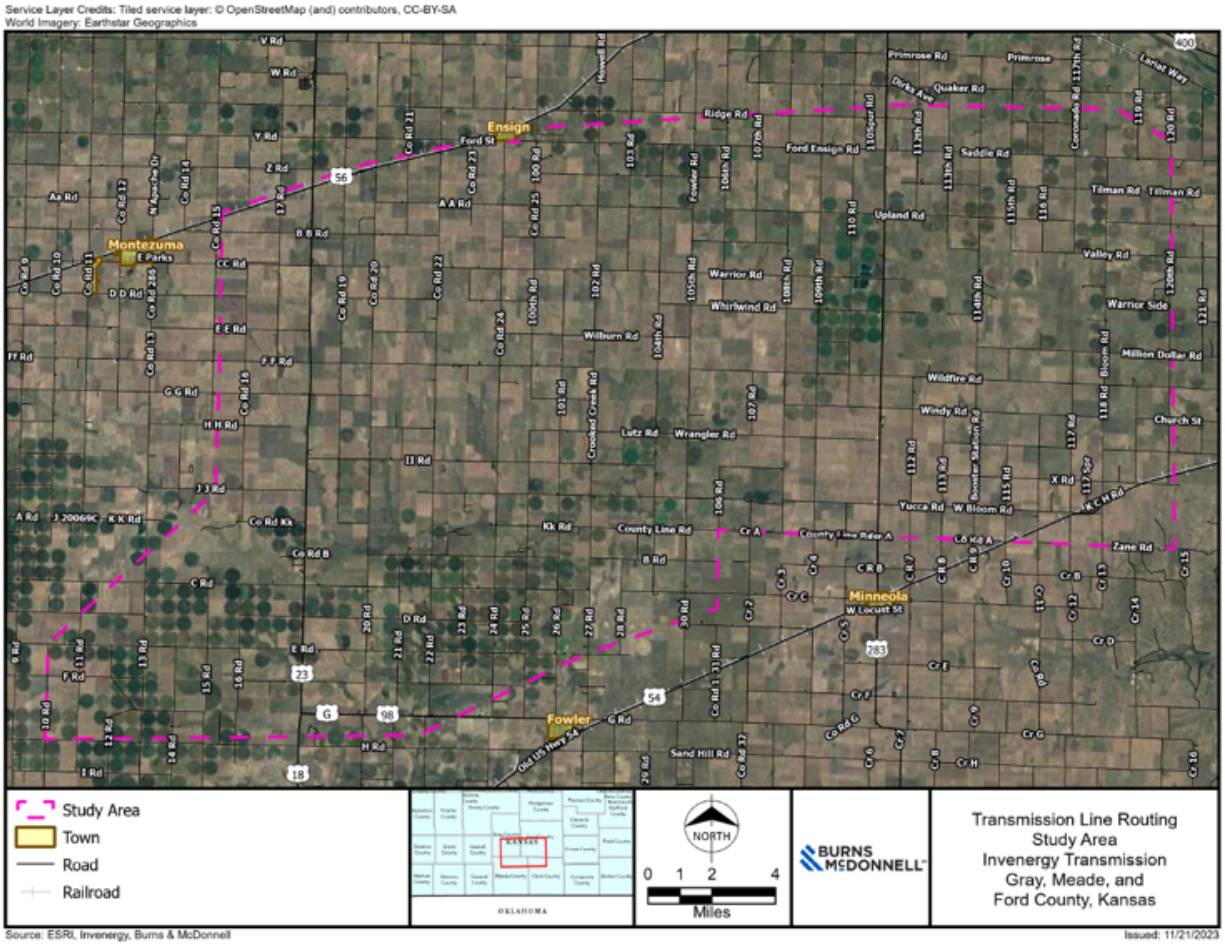
[4] Docket No. 11-GBEE-624-COC, *Order Approving Stipulation & Agreement and Granting Certificate,* Attachment A (*Stipulation & Agreement*) at p. 3.

Line. The two AC Collector Lines share a common end point—the AC switchyard adjacent to the Ford County HVDC converter station. The Meade-Dodge City Line extends southwest from the converter station site to a terminus located approximately 10 miles north of Meade, Kansas. The western starting point of the line was selected because it will facilitate interconnection with renewable energy projects under development in the vicinity of Meade County. The Bucklin-Dodge City Line extends southeast from the converter station site to a terminus located approximately 2 miles north of Bucklin, Kansas. The eastern starting point of the line was selected because it will facilitate interconnection with renewable energy projects under development in Ford and adjacent counties.

Q. How were the starting points of the Meade Line and the Bucklin Line selected?

A. The *western* origination point for the Meade Line was selected in large part to accommodate renewable energy projects in the vicinity of Meade County. Similarly, the eastern origination point for the Bucklin Line was selected because it will facilitate interconnection with renewable energy projects under development in Ford and adjacent counties. As the Commission recognized in Grain Belt Express' proceeding to obtain a certificate of convenience and necessity ("CCN"), the Grain Belt Express Project will both bolster the robustness of the transmission system in Kansas and provide an opportunity for market access for Kansas renewable generation. At this time, it is unknown which power generation projects will interconnect to the Ford County HVDC converter station. The specific projects that will ultimately interconnect with the Project depend on the execution of both interconnection agreements and offtake agreements between generation projects and end users.

More detail regarding the Study Areas for the AC Collector Lines can be found in the testimony of Grain Belt Express witness Jamie Precht, but generally the Study Area for the Meade-Dodge City Line, comprising portions of Gray, Meade, and Ford County, is as depicted below:

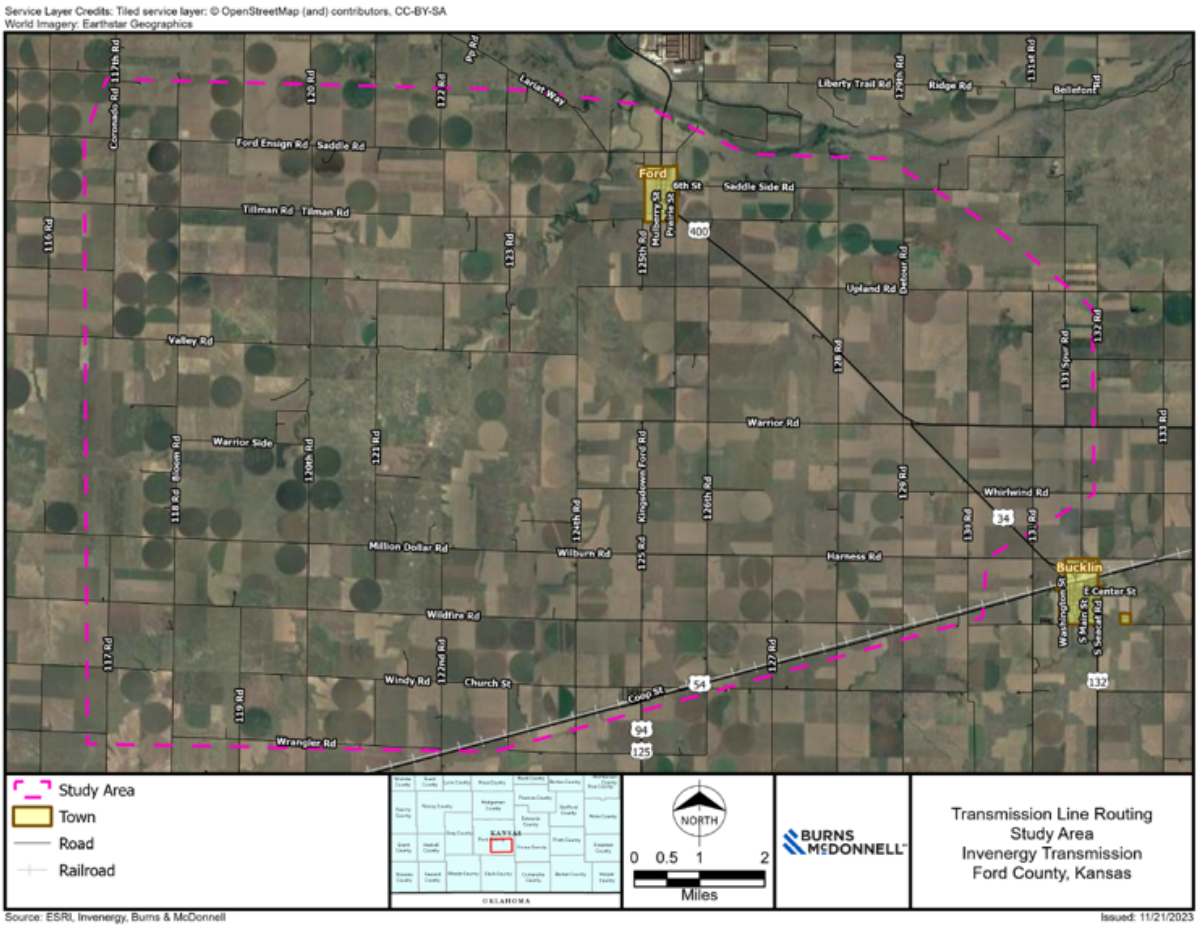


Q. Please describe the Study Area for the Bucklin-Dodge City Line in Ford County, Kansas.

A. More detail regarding the Study Area for the Bucklin Line is found in the testimony of Jamie Precht, but generally the Study Area for the Bucklin Line is as depicted below.

Q. How were the Proposed Routes for the AC Collector Lines identified?

A. Grain Belt Express worked with its internal subject-matter routing experts and retained Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell") to develop the



Proposed Routes for the AC Collector Lines. Ms. Precht describes the routing process and the Proposed Routes for the AC Collector Lines in more detail in her Direct Testimony.

III. PURPOSE AND NEED FOR THE AC COLLECTOR LINES

Q. Please briefly explain why the AC Collector Lines are necessary.

A. Grain Belt Express holds a CCN in Kansas to transact business as a transmission-only public utility in Kansas and to construct, own, operate, and maintain an overhead, multi-terminal ±600 kilovolt ("kV") high voltage direct current ("HVDC") transmission line and associated facilities, including a converter station, an AC switchyard, and alternating current ("AC") collector lines (the "Grain Belt Express Project" or "Project"). The Project is an interregional transmission project that will connect four balancing authorities: Southwest Power Pool, Inc. ("SPP"), Midcontinent Independent System Operator, Inc. ("MISO"), Associated Electric Cooperative Incorporated ("AECI") and PJM

Interconnection, LLC ("PJM"). The Project is designed to facilitate the development and export of this low-cost wind to load and population centers in Missouri, Illinois, Indiana, and states farther east, without burdening Kansas retail electric customers with the capital costs of transmission. The AC Collector Lines—the Meade-Dodge City Line and the Bucklin-Dodge City Line—are necessary to gather output from Kansas wind generation to bring to markets served by the Grain Belt Express HVDC line. The Meade-Dodge City Line will initially interconnect approximately 1,200+ MW and will originate in the southwest region of the Study Area, terminating at the Ford County AC switchyard. Dodge City-Meade will serve as a delivery node for renewable energy projects interconnecting from this region. The Bucklin-Dodge City Line will initially interconnect approximately 600+ MW and will originate in the southeast region of the Study Area, terminating at the Ford County HVDC converter station.

Q. What were the Commission's previous findings regarding the need for the Grain Belt Express Project?

A. In Grain Belt Express' CCN proceeding,[5] the Commission discussed the need for long-distance, multi-state transmission projects such as the Grain Belt Express Project and expressly found that the Grain Belt Express Project will promote the development of wind generation facilities in Kansas.[6] The Commission further noted that the construction of the Project in Kansas will promote economic development and provide benefits to local communities, including: construction of wind farms that could not otherwise be built due to insufficient transmission; construction and permanent maintenance jobs; growth of turbine and related

[5] Docket No. 11-GBEE-623-COC.

[6] Docket No. 11-GBEE-623-COC, *Order Approving Stipulation and Agreement and Granting Certificate*, December 7, 2011 (hereafter, the "CCN Order"), at ¶50.

manufacturing employment; tax revenues for state and local governments in Kansas; and royalties to Kansas landowners.[7] In that proceeding, the Commission also found that the public interest is promoted by the Project, as it provides the opportunity for wind resources to be further developed in Kansas, which is vital to economic growth in the state.[8] The Project "promotes both Kansas' wind energy resources and introduces diversity in the transmission line system with the construction of its HVDC transmission lines and AC Collector System."[9]

Q. The Grain Belt Express Project includes both the HVDC portion of the transmission line and the AC Collector Lines, is that correct?

A. Yes. In this siting application, Grain Belt Express is requesting siting authority for the AC Collector Lines, which are a component of the Grain Belt Express Project approved by the Commission. Because the primary purpose of the Grain Belt Express Project is to bring electricity from wind-rich western Kansas to electricity markets east of Kansas, the AC Collector Lines are necessary to gather power from area generators.

IV. COST AND COST RECOVERY

Q. What is Grain Belt Express' proposed cost for the AC Collector Lines?

A. While Grain Belt Express has not yet retained an Engineering Procurement and Construction contractor for the AC Collector Lines, Grain Belt Express estimates the cost for the Meade-Dodge City line to be approximately $135 million and the cost for the Bucklin-Dodge City line to be another $40 million. Generally, construction cost estimates for a double-circuit transmission line are approximately $3 million per mile and construction costs for a single-circuit transmission line are $2 million per mile.

[7] Id. at ¶¶51-52.

[8] Id. at ¶53.

[9] Id. at ¶ 53.

Q. How will the costs of the AC Collector Lines be recovered?

A. The costs of the AC Collector Lines will be paid for by generation projects seeking interconnection into Grain Belt Express. These costs will be assessed through Grain Belt Express' generator interconnection process. Grain Belt Express will not be seeking recovery of any capital costs from Kansas ratepayers.

Q. How will the costs of the AC Collector Lines be allocated?

A. The cost-share associated with the AC Collector Lines will be allocated to apportioned to generators based on the network upgrade requirements to interconnect them into the Grain Belt Express system.

V. BENEFITS

Q. Please describe how the AC Collector Lines will affect the retail electric rates for customers in Kansas.

A. Because the AC Collector Lines will be financed by projects interconnecting into Grain Belt Express, energy customers in Kansas will not bear capital costs associated with the AC Collector System.

Q. Are there benefits to Kansas that will be realized as a result of the proposed AC Collector Lines?

A. The benefits to Kansas from the proposed AC Collector Lines fall into three categories: direct spending from construction and operation of the line; benefits to landowners and communities; and indirect benefits from additional renewable energy investment in the region. The AC Collector Lines represent a sizeable local investment that will generate income during the construction process. More significantly, the Collector Lines will provide a path to market for renewable energy projects. These projects generate decades of

lease payments and local tax revenue, providing a direct benefit to host communities throughout Southwest Kansas.

Q. Will Grain Belt Express serve end-use customers in Kansas?

A. While Grain Belt Express will not directly serve end-use customers in Kansas, the project provides both significant economic and reliability benefits to Kansas. As noted in the original application, Grain Belt Express construction is anticipated to generate significant local investment and employment in the construction of the main HVDC line. Those benefits will also accrue to communities in which the AC Collector System is sited. Additionally, landowners along the AC Collector Lines will receive income from easement and structure payments, with an option to receive those in a lump sum or annually. Additionally, because the Grain Belt Express Project will have the capability to reverse power flow, the Project could be available to provide power from MISO or PJM in the event of an emergency or grid outage in SPP, providing significant reliability benefits.

Q. Please provide more detail regarding the benefits of bidirectional power flow on the Grain Belt Express Project.

A. The Grain Belt Express Project incorporates HVDC technology that is capable of reversing the flow of electricity on the line to transmit power from east to west or west to east—a capability unique to HVDC projects. During emergency events, the Grain Belt Express Project can import power east to west to stabilize energy prices. Had Grain Belt Express been in operation during Winter Storm Uri in 2021, it could have saved SPP participants millions in costs. Further, in the event of a blackout in the western portion of the Project footprint, power could be reversed to enable the impacted grids to restabilize and recover faster than those only serviced by AC transmission. This is known as a black-start capability. While bidirectional capabilities must be certified or otherwise allowed by

RTOs, the line will be operationally capable of bidirectional flow when it is built because Grain Belt Express is using bidirectional converter stations. Therefore, this line serves as a zero marginal cost benefit to the States along the line because the line provides an option for emergency imports of energy and black-start capabilities without dependency on local generation or onsite fuel. This capability paired with the diverse points of interconnection and low ongoing variable maintenance expense, means the line provides a cost-effective, novel import option and system restoration tool for SPP, MISO, and PJM that does not depend on the viability of a coupled power generation facility.

Q. Have other jurisdictions found that this bidirectional capability benefits the public interest?

A. Yes. In its CCN Amendment Order,[10] the Missouri Public Service Commission found that the Grain Belt Express Project would "enhance the reliability and resilience of the grid by interconnecting four regions with the potential for black-start and bidirectional capabilities."[11] This combination of features "makes the Project a unique system restoration resource, potentially capable of restarting the electric system from a shutdown condition."[12] The Illinois Commerce Commission similarly found the Project will provide substantial reliability and resiliency benefits, including by providing "valuable system restoration capabilities like 'black start' and provide active and reactive power control and fast power run back capabilities."[13]

[10] MPSC Case No. EA-2023-0017, *Report and Order* (Oct. 12, 2023).

[11] *Id*. ¶127.

[12] *Id*.

[13] *See* ICC Dkt. 22-0499, *Order*, p. 36 (Mar. 8, 2023).

Q. Do the AC Collector Lines enable any other benefits in Kansas?

A. Yes. The AC Collector Lines are needed to realize the benefits of the Grain Belt Express Project as a whole.

Q. What are the benefits of the Grain Belt Express Project as a whole?

A. In granting Grain Belt Express' request for a CCN in Docket No. 11-GBEE-624-COC (the "11-624 Docket"), the Commission found substantial competent evidence had been provided to support the grant of a CCN for the Project contemplated by Grain Belt Express.[14] The Commission also found that "the need for long-distance multi-state transmission projects such as the Grain Belt Express . . . will promote the development of wind generation facilities in Kansas, which will provide benefits to Kansas and other areas of the country."[15] The Commission further found that "it is in the public interest to promote the development of wind energy resources, which is vital to economic growth in the state . . . [and] promotes both Kansas' wind energy resources and introduces diversity in the transmission line system,"[16] and that "there is not another public utility that is providing this service."[17]

Then, in approving Grain Belt Express' siting permit in Docket No. 13-GBEE-803-MIS (the "13-803 Docket"), the Commission again found that the proposed Project provides benefits to electric customers both inside and outside of Kansas, and it provides economic development benefits in Kansas.[18] As noted previously, the Commission stated that, "it is physically necessary to build a transmission facility that runs between southwest Kansas to eastern Kansas if one wishes

[14] 11-624 Order, ¶ 17.

[15] 11-624 Order, ¶ 50.

[16] 11-624 Order, ¶ 53.

[17] 11-624 Order, ¶ 57.

[18] 13-803 Order, p. 14, ¶ 37.

to sell wind energy from southwestern Kansas to markets east of Kansas,"[19] finding that, without this Project, "hundreds of millions of economic development dollars would not be spent in Kansas, and the potential for large scale wind farm development would be lost."[20]

The following Commission findings in the 13-803 Order regarding the benefits of the Project for Kansas are still valid:

- The Project will facilitate the development and export of wind resources from western Kansas to load and population centers in Missouri, Illinois, Indiana, and states farther east, without duplicating existing transmission service or facilities.[21]
- The Project will displace other, less environmentally friendly sources of energy, and will provide economic benefits to Kansas in the form of landowner contracts, more jobs from the construction of the line and increased employment in wind-related industries in Kansas, increased production of wind turbine components and additional tax revenue for local and State governments.[22]
- The proposed line will expand renewable generation resources and transmission infrastructure in Kansas using HVDC technology, which allows for better control and transfer of significantly more power with less power loss over long distances, and utilizes narrower rights of way, shorter structures, and fewer conductors.[23]
- The Project will benefit wholesale competition in the electricity market.[24]

[19] 13-803 Order, p. 13, ¶ 32.

[20] 13-803 Order, p. 14, ¶ 36.

[21] 13-803 Order, p. 8, ¶ 21; p. 10, ¶ 24; p. 21, ¶ 57.

[22] 13-803 Order, pp.9-10, ¶¶ 22, 23; p. 13, ¶ 33.

[23] 13-803 Order, pp. 8-9, ¶22.

[24] 13-803 Order, p. 10, ¶ 24; p. 13, ¶¶ 34, 35.

- The Project promotes current and past policy initiatives in Kansas which support wind development and construction of transmission.[25]

Q. What evidence can you provide that the benefits identified by the Commission in the 11-624 and 13-803 Dockets continue to exist?

A. In the intervening years between when the CCN was issued and this Application, the need for a robust transmission system has become even more critical. Numerous recent studies and whitepapers have catalogued the nation's ever-increasing need for transmission capacity expansion. The United States Department of Energy ("DOE") recently undertook a National Transmission Needs Study ("DOE Needs Study")[26] to identify transmission needs that are currently harming consumers or expected to do so in the future and that could be alleviated by transmission solutions. The DOE Needs Study found that interregional and cross-interconnection investments will improve system resilience and alleviate resource adequacy concerns by enabling increased access to diverse generation resources across different climatic zones.[27] Further, the DOE Needs Study suggested that states and local governments would benefit from incorporating the findings contained in the Study into their respective transmission siting and approval processes,[28] noting that "states can consider the regional transmission needs discussed in this study and coordinate with neighboring states to identify, plan, approve, and advocate for transmission solutions that both advance state-level policy goals and broader electricity consumer needs."[29]

[25] 13-803 Order, pp. 11-12, ¶ 28.

[26] https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf

[27] *Id.* at page vi.

[28] *Id.* at page 4.

[29] *Id.*

Q. Are there also benefits of the Grain Belt Express Project to areas outside of Kansas, which the AC Collector Lines will help facilitate?

A. Phase 1 of the Project will deliver 2,500 MW of power into Missouri, including 1,500 MW into MISO and an additional 1,000 MW into AECI.[30] Phase 2 of the Project will deliver 2,500 MW of power to PJM. These systems stand to benefit enormously from the availability of reliable, high-capacity-factor, and affordable renewable energy from western Kansas.

As found by the Missouri Public Service Commission ("MPSC"), there is "substantial evidence of increasing demand for renewable energy from Missouri cities, industrial, large corporate, and utility customers that are setting renewable energy standards and carbon reduction goals."[31] The MPSC further found that the need for the Project is "evident in that the Project is needed for reliability and resiliency of the grid and for national security" and that the Project "will help guard against price spikes and outages such as those experienced by Winter Storm Uri and Elliot."[32]

As found by the Illinois Commerce Commission ("ICC"), "Grain Belt Express has demonstrated that there is a need to address a lack of adequate transmission service to move electricity from the resource area of western Kansas to the MISO and PJM markets, including Illinois. Grain Belt Express has demonstrated sufficient demand for the service. Grain Belt Express has also demonstrated that the Project will provide substantial reliability and resiliency benefits by interconnecting three regions. The Commission finds that Illinois residents will benefit from this interconnection and delivery of electricity from this Project."[33]

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[31] MPSC Case No. EA-2023-0017, *Report and Order*, p. 54 (Oct. 12, 2023).

[32] *Id.* at p. 55.

[33] ICC Dkt. 22-0499, *Order*, p. 36 (Mar. 8, 2023).

Accordingly, there are meaningful and sizable benefits to both Kansas and the surrounding regions. These benefits are both facilitated and expedited via the AC Collector Lines at issue in this proceeding.

VI. ROUTING

Q. Please provide an overview of the routing process.

A. As discussed further in the testimony of Jamie Precht and in the Routing Study, appended to Ms. Precht's testimony as Exhibit JP-1, the overall objective of the route selection process was to identify feasible alternate routes between the identified connection points that would be most beneficial, while reducing adverse impacts to the social and natural environment. Once a Study Area for each transmission line was established, the Routing Team[34] identified resources within the Study Area that could be potential constraints to the selection process. Using both GIS data and information obtained from local, state, and Federal agencies, the Routing Team created an alternate route network. The Routing Team then obtained feedback on the alternate route network from local officials and the public to obtain feedback for additional evaluation. This feedback resulted in the creation of a refined alternate route network, which was then evaluated to identify and quantify the social and natural resources that may be potentially impacted by the refined alternate route network. Utilizing this data, public feedback, and with consideration of engineering factors, the Routing Team evaluated route links within the alternate route network to arrive at the Proposed Routes for the Meade Line and the Bucklin Line.

[34] The Routing Team is comprised of personnel from HDR, Burns & McDonnell, and Invenergy LLC, who collaborated on the routing process and selection for the AC Collector Lines.

Q. Explain what you mean by "alternate route links."

A. The alternate routes consist of individual alternate route links that may be combined in different arrangements to form a continuous path to connect the two endpoints, beginning at the Meade Origination Point and Bucklin Origination Point, and ending at the Grain Belt Express converter station property. Each alternate route link begins and ends at intersections with other alternate route links or the project endpoints.

Q. How were the alternate route links utilized to evaluate and identify potential routes for the AC Collector Lines?

A. For the Bucklin Line, 46 alternate route links were identified which could be used to create alternate routes between the Bucklin Origination Point and the Kansas converter station switchyard. For the Meade Line, 75 alternate route links were identified which could be used to create alternate routes between the Meade Origination Point and the Kansas converter station switchyard. The alternate route links for both Bucklin and Meade were shown to the public at open houses in February 2024, during the simultaneous virtual open house, and for the two-week period after the conclusion of the in-person open houses. The alternate route links for both the Bucklin Line and the Meade Line were edited to incorporate public input and feedback, thereby resulting in a refined alternate route network.

Q. What were the major considerations during the development of the alternate route network?

A. The Routing Team's objectives were to: (1) maximize the distance of the transmission line(s) from residences, businesses, public facilities, parks, cemeteries, communication towers, and wind turbines; (2) minimize crossing through cultivated land and center pivot irrigation arms; (3) maximize the distance of the transmission line parallel to existing

utilities, roads or railroads, where practicable; and (4) maintain a reasonable length with as few angles as possible to control costs and minimize overall impacts. For the Bucklin Line, the refined alternate route links combined to form 696 refined alternate routes that would connect the Bucklin endpoints. For the Meade Line, the refined alternate route links combined to form 6,152 alternate routes that would connect the Meade endpoints. It should be noted here that refined alternate route link combinations that created refined alternate routes that progressed unnecessarily backwards or away from the endpoint were not considered for evaluation. All forward-progressing refined alternate route combinations were evaluated in consideration of potential routes.

Q. How were the refined alternate route combinations evaluated?

A. The refined alternate route combinations were evaluated using fifteen social, environmental, and engineering routing factors (e.g., residential proximity, center pivot irrigation acreage, lesser prairie-chicken score, etc.), as examined in greater detail in the Routing Study, attached to the testimony of Jamie Precht as Ex. JP-1. The factors were considered representative of the potential impact of construction and operation of the AC Collector Lines within the Study Areas. Based upon public feedback, input from Invenergy, and Burns & McDonnell's experience with transmission line projects across the region, Burns & McDonnell assigned weights to each of the factors. Certain factors (e.g., residential proximity score) were determined to warrant greater consideration during the evaluation process and thus received the highest weight (10). Certain other factors (e.g., road crossings) were determined to warrant lesser consideration and thus received a lower score. The evaluation factors for each refined alternate route were then summed and then used to calculate the standard deviation, which measures an individual refined alternate route's difference from the mean or average for each refined alternate route. This statistical

z-score technique reflects the variability among the refined alternate routes for each factor. The z-scores were multiplied by the weights given to each factor and then summed across all factors for each refined alternate route. The z-score analysis allows the refined alternate routes to be screened and the lower-impacting refined alternate routes identified for further consideration.

Q. Does the lowest z-score generally mean that a particular refined alternate route is the best route?

A. Not necessarily. Although I am not a statistician, it is my understanding that the z-scores are not necessarily considered a definitive comparison of alternate routes but rather are intended to provide an index of the relative overall impact associated with the alternatives. Generally, alternate routes with scores in the top ten percent (least impacting) are determined to warrant closer evaluation.

Q. What additional analysis takes place after the z-scores are determined?

A. Once the z-scores are calculated, the least-impacting routes are further analyzed to assess the number of road crossings, heavy angles, acreage of center pivot irrigation, impacts to the lesser prairie-chicken score, and other routing factors. As detailed further in Ms. Precht's testimony, these factors assist in eliminating or lessening potential route constraints so the most appropriate route can be identified.[35]

Q. Please describe Grain Belt Express' outreach to elected officials.

A. Invenergy personnel conducted in-person visits with county officials to provide background information on the AC Collector Lines and answer any questions posed by county officials. County officials also received printed copies of the display boards that

[35] Direct Testimony of Jamie Precht at Sections IV-VIII.

were present at the public meetings. Letters were also sent by Grain Belt Express to Gray, Meade, and Ford Counties requesting information related to county road and ROW permitting, regulations, and agreements; county floodplain permitting; and county building/construction permitting.

VII. CONCLUSION

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

I, Kevin Chandler, do solemnly, sincerely and truly declare and affirm that I am a Director of Transmission Business Development for Invenergy Transmission, LLC, that I have read the foregoing testimony and know the contents thereof, and that the facts set forth therein are true and correct to the best of my knowledge and belief, and this I do under the pains and penalties of perjury.

By: _____
Kevin Chandler

May 31, 2024

Exhibit KC-1

KEVIN CHANDLER

202-596-0960 | k.r.chandler@gmail.com

SUMMARY

Over a decade of experience leading policy, communications, and project development for clean energy and environmental organizations. My career is driven by the promise of a sustainable future.

EXPERIENCE

Director of Transmission Business Development, Invenergy (April 2022 – Present)

Chicago, IL

- Assist the development of the Grain Belt Express project by supporting siting, regulatory and environmental permitting, public outreach, and other efforts as needed

Apex Clean Energy (May 2015 – April 2022)

Charlottesville, VA

Utility-Scale Project Development (April 2021 – April 2022)

- After several years leading policy initiatives for the company, I was offered the opportunity to join the project development team and gain more direct business experience in the industry
- Led development of nearly 1.5 GW of early-stage wind and solar energy projects, primarily in ERCOT, representing roughly $1.5 billion in potential capital investment
- Directed the activity of land agents, consultants, and associate team members related to projects under my management
- Developed and executed strategies for securing local tax agreements, state and federal permits, and community support
- Represented Apex with elected officials, business partners, and other project stakeholders
- Coordinated with internal technical and business teams to create financial models, resource assessments, GIS products, and other information relevant to each project

Director of Government and Regulatory Affairs (October 2018 – April 2021)

- Oversaw legislative and regulatory engagement for one of the nation's leading developers of wind and solar energy, managing a team of five and a network of lobbying consultants
- Directed team activity on policy issues related to project development, market creation, regulatory issues, and utility planning
- Partnered with company leadership on policy analysis for emerging business units, including community solar and renewable hydrogen
- Served as primary liaison for regional trade associations and relevant policy committees within national organizations
- Using collaboration and visualization software, created an internal platform to analyze, track, and share policy and regulatory information across all Apex business departments
- Managed department budget and coordinated political giving

Senior Manager of Federal Affairs (June 2017 – September 2018)

- Created the company's first strategic plan for federal government engagement, collaborating closely with industry partners, contract lobbyists, and the Apex leadership team
- Led advocacy efforts around the 2017 Tax Cuts and Jobs Act, and drove engagement on project siting policy, particularly related to radar and airspace issues within the annual National Defense Authorization Act

- Interfaced with Administration and FERC officials on national energy and infrastructure policy and developed relationships with key Congressional offices

Public Affairs Manager/Senior Public Affairs Manager (May 2015 – June 2017)

- Led community outreach and state policy engagement in the Southeast and Mid-Atlantic
- Directed successful community organizing efforts to permit wind projects in Virginia and North Carolina, including the unanimous approval of Virginia's first wind farm
- Oversaw state policy engagement in Maryland, Virginia, North Carolina, and Tennessee
- Served as an on-the-record spokesman in local, regional, and statewide media
- Drafted press releases, brochures, website, and social content, and other media materials

Associate, Nexus Strategies (June 2013 – May 2015)

Raleigh, NC

- Account leader at a boutique public affairs and communications firm, managing campaigns for a diverse set of clients covering clean energy, sustainability benchmarking, and technology issues
- Built grassroots and grasstops coalitions to raise the profile of client issues and generate tangible results, including media coverage, key policy endorsements, and high-profile advocacy events
- Crafted and edited press statements, op-eds, and online content for distribution to stakeholder audiences, resulting in media placements across state and national markets
- Developed direct-mail advertising and social media campaigns for political clients

Communications Coordinator, Mississippi River Delta Restoration Campaign (October 2011 – June 2013)

Washington, DC

- Managed communications strategy for a joint coalition of the National Audubon Society, National Wildlife Federation, and Environmental Defense Fund focused on ecosystem restoration and sustainable infrastructure
- Led the campaign branding process, overseeing the creation of co-branded materials, style guides, and online content, leveraging existing group brands towards a new campaign identity
- Drafted press statements, blog articles, social media posts, talking points, and editorial memos
- Served as the primary media contact for the campaign, coordinating statements, interviews, and TV appearances for regional and national media

Public Affairs Associate, Armed Forces Foundation (November 2009 – September 2011)

Washington, DC

- Developed and administered the foundation's communications strategy through media relations, community outreach, website management, and social media

EDUCATION

The University of North Carolina at Chapel Hill

B.A. Journalism and Mass Communication, 2007

- James M. Johnston Scholar

M.A. Political Science, TransAtlantic Masters Program, 2009

- Thesis subject: A comparative analysis of American and European approaches to climate policy